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AN ESSAY

ON

OPHTHALMIA,

OR

INFLAMMATION OF THE EYES.

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AN INAUGURAL DESSERTATION
FOR
THE DEGREE
OF
DOCTOR OF MEDICINE:
SUBMITTED
TO THE EXAMINATION
OF THE
REVEREND JOHN ANDREWS, D. D. Provost,
(PRO TEMPORE),
THE
TRUSTEES, AND MEDICAL PROFESSORS
OF THE
UNIVERSITY OF PENNSYLVANIA,
ON THE FIRST DAY OF JUNE, ONE THOUSAND EIGHT
HUNDRED AND FOUR.



TO THE
PROMOTERS OF MEDICAL SCIENCE,
IN
EVERY PART OF THE WORLD

THIS Essay is inscribed as a tribute of esteem, or their laudable exertions in alleviating the unavoidable miseries of mankind : also, for improving their health and happiness, as far as human means can go to attain those objects.

THE AUTHOR.

PREFACE.

IN the following pages I have endeavoured to give a short account of Ophthalmia, its causes, and the method of cure.

In the first part of the essay, I have made a few observations on the laws of animal life ; then the disease is described ; afterwards the causes, both general and local, are considered : and the method of treating it concludes the essay.

I have omitted giving the anatomy of the eye, as that subject must be familiar to the medical reader ; and to most others it would be too unintelligible to be interesting.

PRELIMINARY OBSERVATIONS.

PREVIOUS to treating of Ophthalmia, I shall make a few observations on the laws of animal life.

There is in the animal body a capacity to be acted on by various stimuli, by which all the motions of life are supported. This susceptibility to take an action, upon the application of stimuli, has been called, by Doctors Brown and Rush, “Excitability.”

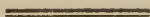
It appears to be governed by the following principles, viz. Stimuli, when applied in an exact ratio to the excitability of the system, produce regular and healthy excitement, whilst an increase or diminution of usual stimuli, produce debility. This debility is called indirect when caused by the former, and direct when caused by the latter.

Debility from either of the above mentioned causes, is soon succeeded by an increase of excitabi-

lity. The excitability is by no means alike in every part of the body, when in this accumulated state ; but is in proportion to parts previously debilitated by the action of the remote cause: hence the irregular or morbid excitement that follows the application of stimuli in this state of the system.*

* See Professor Rush's *Inquiries*, vol. 4.

DESCRIPTION OF THE DISEASE.



THE patient first complains of itching in the eye, succeeded by pain and redness. The latter is owing to the vessels, which, in their healthy state, admit but serous, being now distended with red blood.

When the inflammation, though it be considerable, is seated in the superficial coats and vessels of the eye, the patient is seldom feverish, nor does he experience much pain, or suffer from loss of sleep; the light is not very distressing to him, for he generally follows his usual avocations without much inconvenience. But when the choroid coat, retina, and vessels distributed to the humours of the eye, are much affected, the patient suffers exquisite pain from the admission of light to the now highly excited organ. He is distressed by a frequent and deep-seated pain, shooting from the eye into the head, accompanied by soreness in the parts around the eye.

There is more or less fever present, with loss of sleep, restlessness, and sometimes delirium.

It frequently happens that the vessels of the tunica conjunctiva, are so much enlarged as to entirely destroy its membranous appearance, and make the cornea appear as if it were depressed, forming the Chemosis of authors, so common in Egypt.

The secretion from the lachrymal gland, is not only increased in quantity, but is so altered in quality as to become quite acrid, and thereby keep up the inflammation.

When the disease is violent, and cannot be relieved either by nature, or art, the inflammation increases to such a height as generally to terminate in blindness, either by the effusion of coagulable lymph between the laminæ of the cornea, so as to produce opacity of that coat, or into the crystalline lens, forming the disease called Cataract, and sometimes by the effusion of pus into the chambers of the eye. When a small quantity of pus is effused in the anterior chamber, it is called Onyx: when a large quantity, it is called Staphylom.

The pus sometimes causes the iris to adhere to the capsule of the crystalline lens, and thereby renders the iris motionless: the extravasated matter, at other times, adheres to the edge of the iris, round the pupil, in such a manner as to form an opaque body

in its place, and completely obstruct the passage of the rays of light to the retina.

I deem it unnecessary to go into any further detail on this subject, as it is very fully treated of by Messrs. Ware, Edward More, Noble, and other learned writers on the diseases of the eyes.

CAUSES OF THE DISEASE.

HAVING, in the preceding pages, considered this disease as an inflammation of the eyes, we infer, that the causes which produce it are such as bring on inflammation in other parts of the body ; but from the peculiar sensibility of that organ, and its consequent greater susceptibility of inflammation, stimuli, when applied to it, produce greater irritation than in any other part of the body.

The causes of Ophthalmia may be divided into general and local ; the latter I believe are the more frequent of the two.

The general causes are such as affect the eye through the medium of the whole system.

It is a well known law of the animal economy, that disease always attacks the weakest part, and the eye, whether labouring under previous debility,

or not, may, from its organization, be considered one of the weakest parts of the body.

It would be no very difficult matter, to shew that inflammation of the eyes frequently depends on the usual causes of fever. Who has witnessed the ravages of the Yellow Fever, without marking the red or muddy eye, both depending on inflammation of that organ?

The inflamed and watery eye, in measles and small-pox, are so familiar to every body, that it is only necessary to mention them to recall the painful sensation.

Hippocrates, long ago speaking of the Epidemics of Thasus, says, many persons were taken ill in the spring, “ First of all appeared humid Ophthalmias, with weepings, pain, and indigestion. Little concreted matter broke out with difficulty on the eyes of many persons, returned again in most, and went away at last about autumn.”*

Thucydides, speaking of the plague of Athens, (one of the most fatal on the records of medicine) says, “ Others who were in perfect health, were taken suddenly, without any apparent cause, with violent heats in their heads, and redness and inflammation in their eyes.”†

* Hippocrates on Epidemics, p. 56.

† Hippocrates on Epidemics, p. 96.

In Mr. Ware's valuable work on the diseases of the eyes, I find the following observations, " It
 " (Ophthalmia) frequently comes on in the most sud-
 " den and unexpected manner, without any preceding
 " or concomitant illness. When it happens in this
 " way, the common people call it a blast in the eyes :
 " and, indeed, it seems to proceed from some pecu-
 " liar property in the air that surrounds us. Like
 " other epidemical diseases, it often affects a whole
 " neighbourhood at the same time, as was the case
 " during the summer 1778, at Newberry, in Berk-
 " shire, and in several of the camps, where it was
 " called the ocular disease."*

In Sir Robert Thomas Wilson's History of the British Expedition to Egypt, he says, page 304,
 " The Plague commences in Egypt when the Nile
 " begins to fall, and ceases to be fatal (almost to a
 " day, many pretend precisely so) after the 17th
 " June, which is the period of summer solstice, and
 " when the Nile is supposed to receive the first in-
 " crease."

The same author says, page 310, " The period
 " no sooner arrives when Egypt for a season is
 " relieved from the Plague, than another malady
 " succeeds immediately, distinguished by the name
 " of Ophthalmia."

* Ware on Ophthalmy, p. 17.

In page 313, he says, “ Ophthalmia and Dysentery are evils, generating and expiring together.” Although Sir Robert makes the above observations, he does not suppose Ophthalmia, Dysentery, and Plague to originate from the same causes; the former he attributes to foreign matters floating in the atmosphere, coming in contact with the eyes.

Mr. Power, one of the regimental surgeons, belonging to the English expedition to Egypt, ascribes Ophthalmia, Dysentery, eruptions on the skin, and ulcerated sore throat, to the same virus which cause the Plague. He, however, supposes these various affections are produced by the local application of the virus to the eye, skin, throat, and other parts affected.

Doctor Rownd, of this city, has politely favoured me with the following information, viz. that he has several times seen ophthalmias prevalent in the sickly parts of Maryland and Delaware states, where he practised medicine for many years.

The doctor has not been able to trace the disease of the eyes to any local cause peculiar to that country, or an evident irritation offered to the eyes.

The Ophthalmia does not prevail at the season of bilious fevers, but either precedes or succeeds those fevers.

In addition to the above respectable authorities, I beg leave to observe, that several persons afflicted with violent ophthalmias came under my own care the last autumn; in none of them was I able to discover that any injury had been done to the eyes. The patients were labouring men, in the vicinity of this city, and had been exposed to all the usual causes of autumnal fevers. In every case fever was present, and they were cured by general and local depletion.

Having concluded the general, I shall now mention a few of the local causes of Ophthalmia, which are all such as produce inflammation when applied immediately to the eyes. These are injuries from external violence, acrid substances coming in contact with the globe of the eye, viewing the sun or other luminous bodies, sudden transition from a dark to a lighted room, with many others.*

* It is not my intention to speak of Syphalitic or Scrophulous Ophthalmia.

TREATMENT OF OPHTHALMIA.

OUR prescriptions in this complaint, as in every other, are to be regulated by the "state of the system," and the remedies accordingly adopted to the force of the disease.

If the patient labours under much fever, and complains of pain about the head and temples, and the inflammation of the eyes be violent, bleeding in as large quantities as his strength will admit of, should be practised. In the use of this inestimable remedy, we are to be guided principally by the pulse and the violence of the disease. To specify what quantity of blood it would be necessary to draw, would appear idle to the practitioner of medicine, who prescribes according to the "state of the system," and not the name of a disease. Bleeding should be done as near as possible to the part affected; in urgent cases the

temporal artery, or one of the external jugulars, may be opened in preference to vessels more remote from the eyes. The application of cups to the temples and adjacent parts, should never be neglected, as they seldom fail to have the most salutary tendency. Leeches may be repeatedly applied, and the nearer they fix to the parts inflamed, the greater will be the benefit resulting from their employment.

Another method of bleeding called scarification of the eye ball and lids, is eminently entitled to our attention, as by it, blood is drawn immediately from the inflamed vessels. Some have started objections to this practice, by supposing that the irritation offered to the inflamed organ, more than counterbalanced the benefit derived from it; but from much experience, I can confidently assert the contrary. However it requires confidence and care, to perform the operation with advantage to the patient.

The next indication is to attend to the state of the alimentary canal: costiveness, when present, is to be removed, and obviated afterward. At the head of cathartics, I would place calomel and jalap; these may be followed by saline purgatives, as sal. glau-beri, crem. tart. or phosphat. soda. After the excitement of the system is considerably diminished by the above means, nitre and tartar emetic may keep the

bowels in a proper state of laxity, and assist in overcoming the remains of inflammatory action.

The diet of the patient is also an object of our attention. It ought to be purely vegetable, void of spices and fermented liquors, taken at short intervals, and in small quantities. I can readily conceive, that great abstinence, approaching to a state little short of starvation, may rapidly diminish the morbid excitement in the vessels of the eyes, by creating a more painful sensation in the stomach.

The remedies next in importance to those already mentioned, are blisters. These should be applied to the temples, behind the ear, on the forehead so as to surround the eye, and sometimes all over the head. Whether they act by creating a discharge, and thereby diminish the inflammation, or by exciting a counter action and overcoming the morbid one present, I shall not determine. My object is only to enforce the necessity of their application. They should be kept running for a considerable length of time, by frequent dressings with epispastic, and other stimulating ointments.

If there be a probability of the disease continuing for some time, a drain in the back of the neck, by means of a seton, would be advisable; as it will greatly benefit the patient, by the steady discharge kept up in the part.

As light is a stimulus directly applied to the eye, the necessity of abstracting it becomes urgent in proportion to the violence of the inflammation. For this purpose Messrs. Ware and Edward Moore Noble, recommend the patient wearing a pasteboard hood, so as to defend the eyes from the admission of the rays of light. There can be no doubt but this expedient may have a very salutary effect, and will entirely obviate the necessity of bandages and pledgets, that by pressing on the inflamed organ, must increase the complaint.

But I am of opinion that all we can expect from this remedy may be obtained by confining the patient in a dark chamber, which has the additional good effect of taking off the stimulus of exercise and thereby diminishing arterial action. This practice should be strictly adhered to through the whole of the disease, although it should last for weeks.

It often happens that we are disappointed by all the above remedies in not removing the complaint. When this is the case, we should resort to the use of mercury, and continue the exhibition of it until a salivation is excited. Calomel, corrosive sublimate, or the blue pill, may be given in moderate quantities so as not to affect the mouth too suddenly, or to bring on too profuse a ptyalism. More advantage will be obtained by keeping the patient under a moderate sali-

vation, which can be continued longer without doing so much injury to the system.

If the patient is very restless, and the pain very acute, notwithstanding the inflammation be violent, opium may be administered with the happiest effect. I know that many practioners would consider such prescriptions improper, but the testimonies in its favour are so numerous and respectable, that I, without hesitation, recommend its use.

In the Ophthalmia peculiar to Egypt, where the inflammation is so violent as to produce a perfect chemosis, Mr. Power used it with the greatest success. Sir Robert T. Wilson also speaks of its utility. Sonini when in Egypt, laboured under a violent Ophthalmia, and was cured, in a short time, by a decoction of poppyheads. In confirmation of the above I may add, that the same medicine has frequently proved serviceable in my own practice.

When treating of the general causes of inflammation of the eyes, it appeared probable that the epidemic cases there mentioned, depended on the usual causes of febrile diseases; hence, in the management of Ophthalmia, the physician ought to have an eye on the reigning epidemic, and to the season of the year, in order to accommodate his remedies to the state of the patient.

A variety of applications have been recommended to be made use of to the eyes, and are to be found in the works of every author on this subject, to mention them all, would be of little use to the reader, and would far exceed the limits of my essay; beside many of them are inert, useless, and improper. Those only which are in most esteem, among modern surgeons, will be attended to.

A moderate degree of cold is serviceable in all active inflammations, and particularly so in that of which we are treating.

The best method of applying it is by frequently washing the eye in cold water, or by applying pledgets of fine old linen, wet with cold water, to the eye, and changing them very often for fresh ones.

The mildest application that can be made use of when the inflammation is great, is an infusion of the pith of *sassafras*. This appears to act merely by sheathing the eye from the acrimony of the tears, and removing any foreign matter that might irritate it.

After the inflammation is a little reduced, a weak solution of *saccharum saturni* in rain or river water, may be applied to the eyes. Should the application give pain, the strength of the solution is to be reduced. *Vitriolum album*, or the sulphate of zinc, ranks high among the external remedies for Ophthal-

mia. A weak solution of it, applied to the eyes, sometimes has the happiest effect.

“ I have found ~~the~~ thebaic tincture,” Mr. Ware says, (London Dispensitory) “ wherein opium is “ the principal ingredient, to be eminently service- “ able; and the mode in which I have applied it, has “ been to drop one drop of it into the eye once or “ twice a day, according as the symptoms were more “ or less violent. When first applied it causes a sharp “ pain, accompanied with a copious flow of tears, “ which continues a few minutes, and gradually “ abates; after which a great and remarkable degree “ of ease generally succeeds.

“ The inflammation is often visibly abated by “ only one application of this tincture; and many “ bad cases have been completely cured by it in less “ than a fortnight; after every other kind of remedy “ had been used for weeks, and sometimes months, “ without any success.”*

Mr. Ware goes on to remark that this remedy is not always equally successful and speedy; for in some it is slow in its effect. While in a few it altogether fails.

In cases of long standing, a weak solution of sublimate has been applied with great advantage to the patient.

* See Ware's Remarks, p. 43.

Mr. Thomas Moore Noble has recommended the application of water to the eyes as warm as the patient can bear it. The same gentleman also advises a weak mixture of spirits of wine and water to the eyes; but as I have never had an opportunity of using either of these remedies, I cannot say any thing for or against their utility.

I have seen slow inflammation of the eyes very much relieved by a weak infusion of galls; to which a small quantity of brandy had been added.

I have thus concluded a short essay on the causes and cure of Ophthalmia. I think no other apology for its imperfection necessary, than its being the effect of necessity, and not choice, to fulfil a law of the university.

THE AUTHOR.

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